

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Reissue Application of: Hashem Akhavan-Tafti

Assignee: LUMIGEN, Inc.

Attorney Docket No: Lum 4.1-79

U.S. Patent No.: 6,001,614

Issued: December 14, 1999

Reissue Appln. No. \_\_\_\_\_

Group Art Unit: \_\_\_\_\_

Confirmation No.: \_\_\_\_\_

Examiner: \_\_\_\_\_

Filed: December 12, 2001

Title: METHODS OF SYNTHESIZING LABELED POLYNUCLEOTIDES BY  
LIGATION OF MULTIPLE OLIGOMERS

**DECLARATION UNDER 37 C.F.R. § 1.175, AND POWER OF ATTORNEY**

I am the named inventor on the captioned U.S. Patent No. 6,001,614, issued December 14, 1999. As the named inventor, I hereby declare that my residence, mailing address and citizenship are as stated below next to my name. I verily believe I am the original, first and sole inventor of the subject matter claimed in this application for reissue of U.S. Patent No. 6,001,614, entitled:

METHODS OF SYNTHESIZING LABELED POLYNUCLEOTIDES BY LIGATION  
OF MULTIPLE OLIGOMERS.

The application for reissue of U.S. Patent No. 6,001,614 comprises the attached copy of U.S. Patent No. 6,001,614, as amended by a Preliminary Amendment dated December 12, 2001. I have reviewed and understand the contents of the specification of the above-identified reissue application, including the claims, as amended by the Preliminary Amendment referred to above.

I believe the original patent to be wholly or partly inoperative by reason of the patentee claiming more or less than patentee had a right to claim.

I hereby acknowledge the following errors in the claims of the original patent, which causes the original patent to be wholly or partly inoperative. In particular, independent 1 and 23 of the patent is narrower in scope than it should be, by virtue of the definition of the oligonucleotide 5'-monophosphates as "consists of not more than 10 bases." The specification at, e.g., column 4, lines 24-25, make clear that such oligonucleotide 5'-monophosphates are defined as including "up to about 10 base length." Accordingly, this reissue application seeks to correct the error present in independent claims 1 and 23 of the patent, by amending the definition of the oligonucleotide 5'-monophosphates as "[consists of not more than] has up to about 10 bases."

Moreover, this reissue application seeks to correct an error in the original patent which occurred due to inadvertence in not claiming all embodiments which I had a right to claim. New reissue claims 24-29 are directed to embodiments wherein the new independent claims track the subject matter of independent claims 1 and 23 of the original patent, but are not limited by specific base lengths of the primer and oligonucleotide 5'-monophosphates, respectively. Instead, their lengths are defined such that the length of each of the oligonucleotide 5'-monophosphates is short relative to the length of the primer. This specific concept of differential base lengths is disclosed in the original patent at, e.g., column 11, line 41 to column 12, line 6. The newly added dependent claims recite preferred embodiments of the base lengths of the primer and oligonucleotide 5'-monophosphates, consistent with the disclosure and claims of the original patent.

All the errors which are being corrected in this reissue application up to the time of filing this declaration, arose without any deceptive intention on the part of the applicant.

I acknowledge my duty to disclose information of which I am aware and which is material to the patentability of this application as defined in 37 C.F.R. 1.56.

To the extent necessary, I hereby claim the benefit under 35 United States Code §120 of United States Patent Application No. 09/241,353, filed February 2, 1999, which issued as U.S. Patent No. 6,001,614 for which reissue is now sought.

I hereby appoint Richard S. Handley, Ph.D., Reg. No. 38,484, as my attorney or agent to prosecute this reissue application and to transact all business in the Patent and Trademark Office connected therewith, and request that all correspondence about the application be addressed to:

Richard S. Handley, Ph.D.  
LUMIGEN, INC.  
22900 West Eight Mile Road  
Southfield, MI 48034  
Telephone: (248) 351-5600

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

  
Hashem AKHAVAN-TAFTI

Date: December 12, 2001

Residence: Howell, Michigan  
Mailing Address: 4545 Vines Road  
Howell, Michigan, 48843  
Citizenship: U.S.

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Reissue Application of: Hashem Akhavan-Tafti

Assignee: LUMIGEN, Inc. Attorney Docket No: Lum. 4.1-79

U.S. Patent No.: 6,001,614 Issued: December 14, 1999

Reissue Appln. No. \_\_\_\_\_ Group Art Unit: \_\_\_\_\_

Confirmation No.: \_\_\_\_\_ Examiner: \_\_\_\_\_

Filed: December 12, 2001

Title: METHODS OF SYNTHESIZING LABELED POLYNUCLEOTIDES BY  
LIGATION OF MULTIPLE OLIGOMERS

CONSENT OF ASSIGNEE AND PROOF OF OWNERSHIP

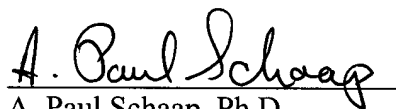
Assistant Commissioner for Patents  
Box Reissue  
Washington, D.C. 20231

Sir:

Pursuant to 37 C.F.R. § 1.172, LUMIGEN, INC., the assignee of U.S. Patent No. 6,001,614, consents to the filing of the concurrently filed application for reissue of U.S. Patent No. 6,001,614.

Pursuant to 37 C.F.R. § 3.73(b), I hereby aver that LUMIGEN, INC. is the owner of the entire right, title and interest in and to U.S. Patent No. 6,001,614, by virtue of an Assignment from the inventor executed on February 1, 1999, and recorded in the U.S. Patent & Trademark Office on February 1, 1999 at Reel 9769, Frame 0196. A copy of the recorded Assignment is attached.

Respectfully submitted,



A. Paul Schaap, Ph.D.  
President  
LUMIGEN, INC.

LUMIGEN, INC.  
22900 West Eight Mile Road  
Southfield, MI 48034  
Telephone: (248) 351-5600

Date: December 12, 2001

## ASSIGNMENT

WHEREAS, I, Hashem Akhavan-Tafti residing at 1165 S. Latson Road, Apt. 16, Howell, Michigan 48843, (Assignor) have invented certain new and useful improvements in METHODS OF SYNTHESIZING POLYNUCLEOTIDES BY LIGATION OF MULTIPLE OLIGOMERS for which an application for United States Letters Patent was signed by me on even date herewith; and

WHEREAS, LUMIGEN, INC., a corporation of the State of Michigan, whose post office address is 24485 W. Ten Mile Road, Southfield, Michigan 48034, (Assignee) is desirous of acquiring the entire right, title and interest in and to said invention and in and to any Letters Patent that may be granted therefor in the United States and in any and all foreign countries.

NOW, THEREFORE, in consideration of the sum of One Dollar (\$1.00) to me in hand paid, the receipt whereof is hereby acknowledged, and other valuable considerations, I the Assignor, have sold, assigned and transferred, and by these presents do sell, assign and transfer unto said Assignee the full and exclusive right to said invention in the United States and its territorial possessions and in all foreign countries, including rights of priority under the Paris Convention (1883) as amended, and the entire right, title and interest in and to any and all Letters Patent which may be granted therefor in the United States and its territorial possessions and in any and all foreign countries and in and to any and all divisions, reissues, continuations and extensions thereof.

I hereby authorize and request the Patent and Trademark Office officials in the United States and any and all foreign countries to issue any and all of said Letters Patent, when granted, to said Assignee as the Assignee of my entire right, title and interest in and to the same for the sole use and benefit of the said Assignee, its successors and assigns.

FURTHER, I agree that I will communicate to said Assignee its representatives any facts known to me respecting said invention, and testify in any legal proceeding, sign all lawful papers, execute all divisional, continuation, substitution, renewal and reissue applications, execute all necessary assignment papers to cause any and all of said Letters Patent to be issued to said Assignee, make all rightful oaths and generally do everything possible to aid said Assignee, its successors and assigns, to obtain and enforce proper protection for said invention in the United States and in any and all foreign countries.

IN TESTIMONY WHEREOF, I have hereunto set my hand this 1<sup>ST</sup> day of February, 1999.  
Signed in the Presence of:

A. Paul Schrag Hashem Akhavan-Tafti  
Hashem Akhavan-Tafti

STATE OF MICHIGAN :

SS.

COUNTY OF Oakland :

On this 1<sup>st</sup> day of February, 1999, personally appeared before me the above named Hashem Akhavan-Tafti to me known and known to me to be the person described in and who executed the foregoing instrument and acknowledged the same to be his free act and deed in and for the purposes set forth in said instrument.

SEAL

Susan D. Silletti  
Notary Public

My Commission Expires: 1/22/00



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Patent and Trademark Office**  
ASSISTANT SECRETARY AND COMMISSIONER  
OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231

MAY 13, 1999

PTAS

RICHARD S. HANDLEY  
24485 W 10 MILE RD.  
SOUTHFIELD, MI 48034



\*100971494A\*

UNITED STATES PATENT AND TRADEMARK OFFICE  
NOTICE OF RECORDATION OF ASSIGNMENT DOCUMENT

THE ENCLOSED DOCUMENT HAS BEEN RECORDED BY THE ASSIGNMENT DIVISION OF THE U.S. PATENT AND TRADEMARK OFFICE. A COMPLETE MICROFILM COPY IS AVAILABLE AT THE ASSIGNMENT SEARCH ROOM ON THE REEL AND FRAME NUMBER REFERENCED BELOW.

PLEASE REVIEW ALL INFORMATION CONTAINED ON THIS NOTICE. THE INFORMATION CONTAINED ON THIS RECORDATION NOTICE REFLECTS THE DATA PRESENT IN THE PATENT AND TRADEMARK ASSIGNMENT SYSTEM. IF YOU SHOULD FIND ANY ERRORS OR HAVE QUESTIONS CONCERNING THIS NOTICE, YOU MAY CONTACT THE EMPLOYEE WHOSE NAME APPEARS ON THIS NOTICE AT 703-308-9723. PLEASE SEND REQUEST FOR CORRECTION TO: U.S. PATENT AND TRADEMARK OFFICE, ASSIGNMENT DIVISION, BOX ASSIGNMENTS, CG-4, 1213 JEFFERSON DAVIS HWY, SUITE 320, WASHINGTON, D.C. 20231.

RECORDATION DATE: 02/02/1999

REEL/FRAME: 9769/0196  
NUMBER OF PAGES: 3

BRIEF: ASSIGNMENT OF ASSIGNOR'S INTEREST (SEE DOCUMENT FOR DETAILS).

ASSIGNOR:

AKHAVAN-TAFTI, HASHEM

DOC DATE: 02/02/1999

ASSIGNEE:

LUMIGEN, INC.  
24485 W 10 MILE RD  
SOUTHFIELD, MICHIGAN 48034

SERIAL NUMBER: 09241353  
PATENT NUMBER:

FILING DATE: 02/02/1999  
ISSUE DATE:

JOANN STEWART, EXAMINER  
ASSIGNMENT DIVISION  
OFFICE OF PUBLIC RECORDS

2.2.99

02-23-1999

FORM PTO-1595  
(Rev. 6-93)

OMB No. 0851-0011 (exp. 4/94)

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100971494

HEET

U.S. DEPARTMENT OF COMMERCE  
Patent and Trademark OfficeU.S. PTO  
09/24/1353  
02/02/99

To the Honorable Commissioner of Patents and Trademarks: Please record the attached original documents or copy thereof.

## 1. Name of conveying party(ies):

Hashem Akhavan-Tafti

Additional name(s) of conveying party(ies) attached? ☐ Yes ☐ No

## 2. Name and address of receiving party(ies)

Name: Lumigen, Inc.

Internal Address: \_\_\_\_\_

Street Address: 24485 W 10 Mile Rd

Southfield MI 48034

City: \_\_\_\_\_ State: \_\_\_\_\_ ZIP: \_\_\_\_\_

Additional name(s) & address(es) attached? ☐ Yes ☒ No

## 3. Nature of conveyance:

☒ Assignment☐ Merger☐ Security Agreement☐ Change of Name☐ Other \_\_\_\_\_

Execution Date: 02/02/1999

## 4. Application number(s) or patent number(s):

If this document is being filed together with a new application, the execution date of the application is: 02/02/1999

A. Patent Application No.(s)

B. Patent No.(s)

Additional numbers attached? ☐ Yes ☒ No

## 5. Name and address of party to whom correspondence concerning document should be mailed:

40.00 CH

Name: Richard S. Handley

Internal Address: \_\_\_\_\_

Street Address: 24485 W 10 Mile Rd

City: Southfield State: MI ZIP: 48034

## 6. Total number of applications and patents involved: 1

7. Total fee (37 CFR 3.41).....\$ 40.00

☐ Enclosed☒ Authorized to be charged to deposit account

## 8. Deposit account number:

12-2368

(Attach duplicate copy of this page if paying by deposit account)

DO NOT USE THIS SPACE

## 9. Statement and signature.

To the best of my knowledge and belief, the foregoing information is true and correct and any attached copy is a true copy of the original document.

Richard S. Handley

Name of Person Signing

Richard Handley

Signature

02/02/1999

Date

Total number of pages including cover sheet, attachments, and document: 3

Mail documents to be recorded with required cover sheet information to:  
Commissioner of Patents & Trademarks, Box Assignments  
Washington, D.C. 20231